

REMARKS

In the Action, Claims 1 and 2 are rejected under 35 U.S.C § 103(a) as being unpatentable over *Smoot* (U.S. Patent No. 4,565,974) in view of *Nakamura et al.* (U.S. Patent No. 5,475,342). In response, Applicant notes the FET device 19 of Figure 3 of the cited reference, *Smoot*, modifies the input to the preamplifier 16 but does not control the gain of the amplifier 16. The Examiner equates the circuit associated with FET device 19 of Figure 3 from *Smoot* to be the same as “a gain controller, which compares the first reference voltage with a comparison voltage and outputs the control signal which controls a gain of the pre-amplifier” of Claim 1.

In *Smoot*, the gain controller, the FET shunt device 19 is controlled solely by a peak-to-peak detector 18 (*Column 3, line 44-48*). This gain controller makes no comparison with a comparison voltage to output a control signal to control gain of the pre-amplifier. However, according to the present invention, the gain controller “compares the first reference voltage with a comparison voltage and outputs the control signal which controls a gain of the pre-amplifier according to the comparison result.” See, Claim 1. The BIAS voltage that the examiner equates to the comparison voltage provides only for establishing appropriate operating condition for the FET device 19. See *Column 9, lines 33-45*. It is not an independently variable parameter like a comparison voltage.

The Examiner also states that it is well known that a FET can operate as a variable resistor. While a FET can be used as variable resistors and is well known in the industry, reading that the output value of the drain voltage of the FET device 19 as controlling the gain of the amplifier 16 is an overly broad interpretation and does not suggest the limitation as set forth in the claims. The gain of an amplifier is the multiplying effect on its input value to obtain a higher output value. Here, the potential at the drain of the FET device 19 which is connected to the amplifier 16 changes based on the difference in voltage potential between the peak-to-peak detector and a reference voltage. As the potential on the drain of FET device 19 changes, the resistance at the input to amplifier 16 changes and thus the impedance as seen by the photodiode 14 changes. But no parameter, including the gain, of the amplifier 16 changes due to this variation of resistance. Even though the value from the peak-to-peak detector 18 is being compared to the value of the BIAS voltage, it does not change gain of the amplifier 16. Thus, *Smoot* does not teach or suggest a gain controller that outputs the control signal which controls a gain of the pre-amplifier required by Claims 1 and 2. Accordingly, reconsideration and withdrawal of the § 103(a) rejection of Claims 1 and 2 are respectfully requested.

Claim 3 is rejected under 35 U.S.C § 103(a) as being unpatentable over *Smoot* in view of *Nakamura et al.* and in further view of *Bayruns et al.* (U.S. Patent No. 5,602,510). In response, Applicant notes *Smoot*, which is used as the primary reference, does not teach or suggest each of the limitation of

independent Claim 1 for the above-mentioned reasons. Accordingly, reconsideration and withdrawal of the § 103(a) rejection of Claim 3 which depends from Claim 1 is respectfully requested.

In view of the foregoing, it is believed that all claims now are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666.

Respectfully submitted,

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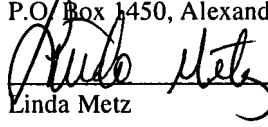
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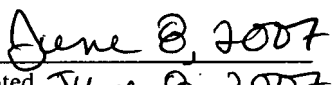

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